

Swan Neck Deformity



Overview

This condition is a result of tendon imbalance in the finger or thumb. In the finger, it causes a characteristic deformity in which the middle finger joint (called the PIP joint) hyperextends, and the fingertip joint (called the DIP joint) bends downward. When viewed from the side, the finger looks like the outstretched neck of a swan.

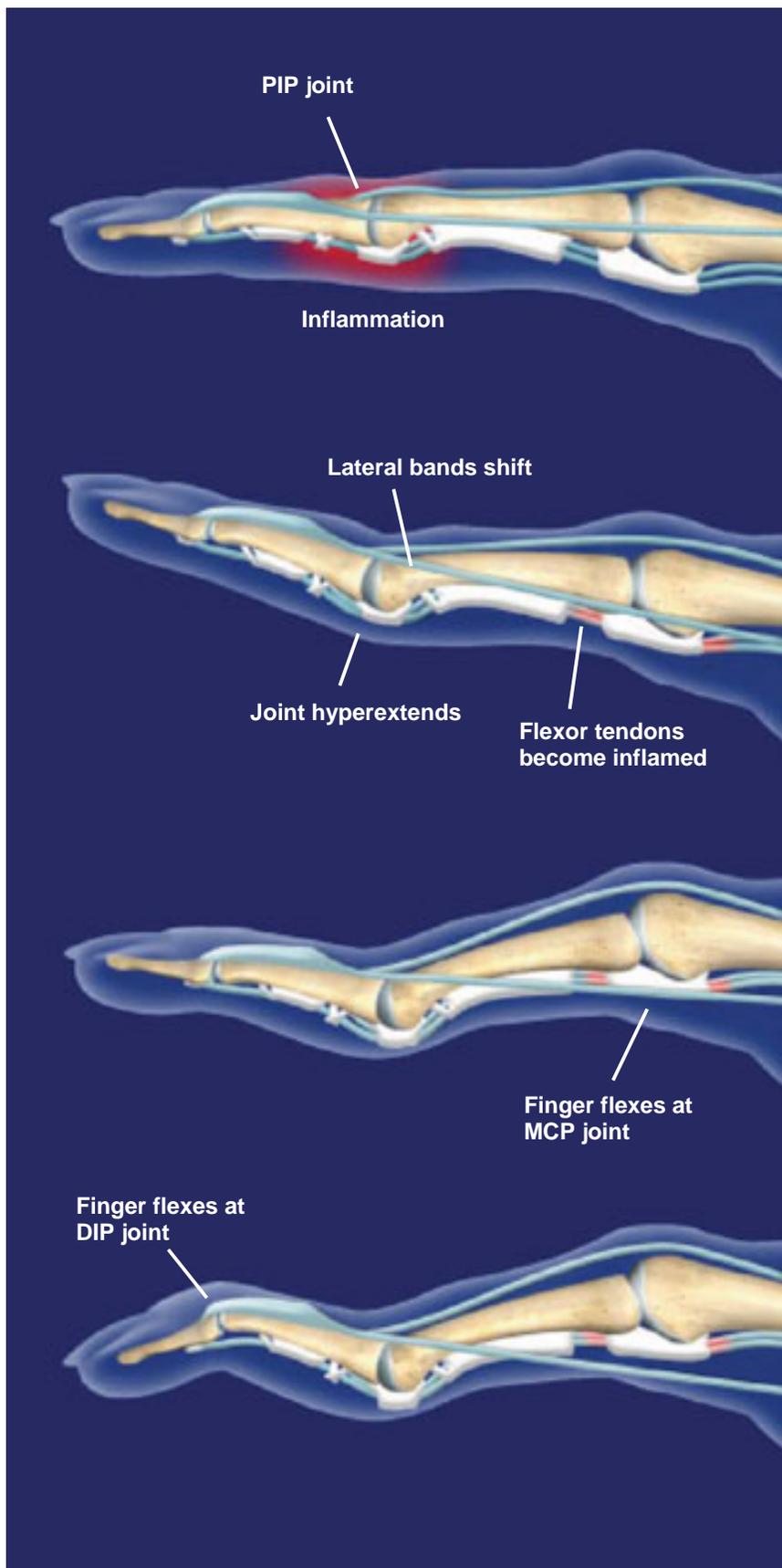
In the Thumb

In the thumb, the condition causes the thumb tip joint (called the IP joint) to bend and the middle thumb joint (called the MCP joint) to hyperextend, resulting in the characteristic swan-neck appearance. If the IP joint bends but the MCP joint does not hyperextend, this is sometimes called a duck-bill thumb deformity.

Causes

This deformity is most commonly caused by rheumatoid arthritis, which can weaken or rupture the stabilizing tissues around the joints and can alter the joints' mechanics. It may also be caused by a hyperextension injury to the PIP joint, a mallet finger injury in a patient with loose ligaments, muscle imbalance, an improperly-healed finger fracture, or cerebral palsy.

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Mechanism of Deformity

In patients with rheumatoid arthritis (the most common scenario) swan-neck deformity is caused by synovitis and tissue inflammation of the PIP joint. The joint tissues weaken, allowing the joint to hyperextend and the lateral stabilizing tendons to shift above the joint axis. The flexor tendons become inflamed, causing the finger to flex at the MCP joint. This effectively shortens the extensor tendons, increasing the stress on the PIP joint and causing the DIP joint to flex.

Symptoms

Often, the only symptom of swan neck deformity is the deformity itself - hand function may not be affected. The tendons may snap as the finger is flexed. At times, this tendon snapping may become painful. As the deformity becomes more advanced, it may be difficult or impossible to flex the fingers into a fist, and arthritis in the fingers may cause joint pain and motion difficulty.

Treatment

Treatment options for swan-neck deformity vary depending on the severity of the symptoms. If the deformity is painless and does not affect function of the hand, treatment may not be needed. In other cases, specialized splints can prevent hyperextension and relieve snapping tendon discomfort. In more severe cases, surgery may be needed to stabilize or fuse the joint.